

Application No. 10/771,023

MXIC 1564-1
(P920205US)**REMARKS****Amendment to Claim 17**

Claim 17 was amended to include a semicolon at the end of the first paragraph in the body of the claim. Applicants contend that said amendment does not necessitate a new search of the prior art, therefore, should be entered.

Claims 1, 16 and 17

In the Final Official Action mailed 08 February 2006, claims 1 and 17 were rejected as allegedly being unpatentable over Sakui et al. in view of Lee et al. Claim 16 was rejected as allegedly being unpatentable over Sakui et al. in view of Lee et al. and further in view of Eitan. Applicants contend that there is no suggestion to combine the teachings of Sakui et al. with the teachings of Lee et al, because Sakui et al. teach away from employing a SONOS-type memory cell and that the facts proffered in support of combining Sakui et al. with Lee et al. set forth in the Final office action is flawed for failing to realize that such a modification would render the invention set forth by Sakui et al. inoperable for its intended function.

Applicants respectfully contend that Sakui et al. teach away from employing SONOS-type memory cell for several reasons, and at least due Sakui et al.'s belief that the "electron trapping amount of silicon nitride film is almost predetermined [making it] difficult to freely shift the threshold voltage distribution of the memory cell." See column 23, lines 60-63. Sakui et al. provide as an example of a SONOS-type the teachings of Lancaster et al. at column 23, lines 27-52. In addition, Sakui et al. cite several reasons for not wanting to employ a SONOS-type memory cell, including not knowing how to employ the same for byte size data change operations, see *id.*, as well as not being capable of providing the voltage threshold distribution as shown in Figs. 6 or 7, after an erase or program operation. See column 23, lines 53-67. Additionally, Sakui et al. desire to form the memory cell transistors with the same structure as the select transistors, i.e., a stacked gate structure with the lower layer (presumably the floating gate) operating as the gate electrode.¹ See column 5, lines 28-30. As a result, it is respectfully contended that based upon the foregoing teachings of Sakui et al., there is no suggestion to

¹ If this is in fact the case, Sakui et al could not achieve that function were the same modified to include the SONOS-type cell of Lee et al. There is no teaching or suggestion in either Sakui et al. or Lee et al. how to operate a nitride layer as a control gate.

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combine the teachings of Sakui et al. with the teachings of Lee et al., because Sakui et al. teach away from employing a SONOS-type memory cell.

Moreover, Applicants contend that the facts set forth in the Final Office Action in support of combining the teachings of Sakui et al. and Lee et al., are flawed, because making such a combination would render Sakui et al. inoperable for its intended function. Specifically, in the Final Office Action, it was contended that the motivation to combine the teachings of Sakui et al. with the teachings of Lee et al. is upheld because the cell taught by Lee et al. is not a conventional SONOS cell of the type taught by the applicant and Lancaster et al. The Office action continues to suggest that the SONOS cell taught by Lee et al. could indeed be substituted for the cells of Sakui et al, because the problem of poor data retention has been rectified. The Office Action goes further to advocate that the cell of Lee et al. would be more desirable for the system of Sakui et al. due to the power consumption and scalability advantages of the cell of Lee et al. over the cell of Sakui et al.² However, Sakui et al.'s invention is directed to, *inter alia*, obtaining a desired threshold voltage after erase and program operations, see column 23, lines 53-67, so that the program and erase threshold voltages may be distinguished based upon the polarity of the threshold voltage, i.e., whether the same is negative or positive. See column 14, lines 48-54. Sakui et al. advocate this feature so that the verify function may be simplified. See column 14, lines 48-62. Lee et al., on the other hand, teaches that voltage thresholds for both erase and program operations are positive. See Figs. 3-8 and accompanying text. Were Sakui et al. modified to include the SONOS-type cell of Lee et al., all voltage thresholds would be positive, thereby rendering Sakui et al.'s function of simplifying the verify function inoperable. As a result, Applicants respectfully contend that there is no suggestion to modify Sakui et al. to include the cell of Lee et al., because the intended function of Sakui et al. would be destroyed.

Finally, none of the remaining applied cited art overcomes the deficiencies of Sakui et al. and Lee et al. As a result, Applicants respectfully contend that claims 1, 16 and 17 defines inventions that are not obvious in view of the cited prior art.

² Applicants believe that the Office may be making these assertions based upon a belief that such are well known information in the art. If so, then Applicants believe that this constitutes a new ground of rejection; thereby, resulting in the Final Office Action being premature. In addition, if this is a rejection based upon well know information in the art, Applicants respectfully request documented proof showing a SONOS-type memory cell providing the benefits discussed in Sakui et al.

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Dependent Claims

Considering that the dependent claims include all of the limitations of the independent claims from which they depend, the dependent claims define inventions suitable for patent protection to the extent the independent claims define inventions suitable for patent protection. Therefore, based upon the foregoing arguments with respect to the independent claims, Applicants respectfully contend that the dependent claims define subject matter suitable for patent protection.

CONCLUSION

Accordingly, reconsideration of the rejection of claims 1-4, 6-27 and 29-64 as amended is respectfully requested. A notice of allowance is earnestly solicited. The Commissioner is authorized to charge any fee determined to be due in connection with this communication, or credit any overpayment, to our Deposit Account No. 50-0869 (MXIC 1564-1).

Respectfully submitted,

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